U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE
SUBCOMITTEE ON RESEARCH

HEARING CHARTER

H.R. 4030, the Congressional Medal for Outstanding Contributions in Math and Science Education Act of 2004

Tuesday, March 30, 2004
10:00 a.m. – Noon
2318 Rayburn House Office Building

1. Purpose

On Tuesday, March 30, 2004, the Research Subcommittee of the Committee on Science of the House of Representatives will hold a hearing to examine the benefits of business involvement in math and science education and to consider H.R. 4030, legislation to establish the "Congressional Medal for Outstanding Contributions in Math and Science Education" program. The legislation seeks to recognize private entities for their outstanding contributions to K-12 science, technology, engineering and mathematics education.

2. Witnesses

Dr. Judith Ramaley is the Assistant Director of the Education and Human Resources Directorate at the National Science Foundation (NSF). Prior to joining NSF in 2001, Dr. Ramaley was President of the University of Vermont, and before that she was a professor of biology at Portland State University.

Mr. Jay Engeln is the Resident Practitioner for Business-School Partnerships at the National Association of Secondary School Principals. Mr. Engeln has nearly thirty years of experience in public education in various positions at Colorado high schools, including as principal of William J. Palmer High School in Colorado Springs, where he initiated partnerships with more than 100 businesses. Mr. Engeln also was a finalist for Colorado Teacher of the Year and a recipient of the prestigious Kappa Delta Pi Award for outstanding contributions to education programs.

Mr. Torrence Robinson is the Director of Federal Affairs for Texas Instruments, where he is responsible for developing and implementing education initiatives. In addition to his responsibilities at Texas Instruments, Mr. Robinson serves as chair of the Texas Technology Workforce Development Program Advisory Committee, a committee of the Texas Higher Education Coordinating Board, and is a member of the Greater Dallas Chamber's Education Taskforce

Ms. Antoinette Bailey is the Vice President of Community and Education Relations at Boeing Company, where she is responsible for corporate charitable contributions,

employee contributions, volunteerism, and external education funding and initiatives. Prior to the merger of Boeing and McDonnell Douglas, Ms. Bailey served as Vice President of Community Relations of McDonnell Douglas and President of the McDonnell Douglas Foundation.

Mr. Gus Krudwig is the co-founder of the Glou Factory in Jackson, Michigan. Established in 2000, the Glou Factory supports after-school, weekend, and summer enrichment programs for students in areas ranging from computer technology to woodworking.

3. Overarching Questions

The hearing will address the following overarching questions:

- What is the Administration's position on H.R. 4030, *the Congressional Medal for Outstanding Contributions in Math and Science Education Act of 2004*?

- Why should businesses get involved in education? And what role can they play in ensuring that all students receive a high quality, world-class education?

- What are the results and benefits of business involvement in math and science education for the employer and its employees, the school, teachers and their students, and the community as a whole?

- What are the hallmarks of a successful partnership between schools and businesses? How is that success measured? And how are those successes shared with other schools and businesses?

4. H.R. 4030*, the Congressional Medal for Outstanding Contributions in Math and Science Education Act of 2004*

Congress, school administrators and teachers have grown to embrace private sector involvement in education, especially as it relates to math and science achievement. For that reason, there have been a number of initiatives at NSF to encourage private sector involvement in education. For instance, until recently, 15 percent (approximately $35 million) of H-1B user fees were used to support K-12 activities involving private-public partnerships in education, including materials development, student externships, and math and science teacher professional development. In addition, the Math and Science Partnerships Program created by the *National Science Foundation Authorization Act of 200*2 (P.L. 107-296) sought to require at least half of all partnerships funded under the program to involve businesses.

On March 25, 2004, Representative Nick Smith introduced H.R. 4030, *the Congressional Medal for Outstanding Contributions in Math and Science Education.* The legislation seeks to recognize the outstanding contributions of private sector entities in improving

math and science achievement by establishing an award program at the National Science Foundation.

5. Background

According to a 2000 study by the National Association of Partners in Education, Inc., the number and scope of school-business partnerships has increased significantly in the past 12 years. Today, nearly 70 percent of all school districts now engage in some form of business partnership—an increase of 35 percent science 1990—with businesses contributing an estimated $2.4 billion and 109 million volunteer hours.

Student Achievement

The 2000 National Assessment of Educational Progress (NAEP) showed that large numbers of U.S. students demonstrate a mastery of only rudimentary mathematics. For example, 31 percent of 4th graders, 34 percent of 8th graders and 35 percent of 12th graders scored below "basic," meaning that the student failed to demonstrate even partial mastery of the knowledge and skills that are fundamental for proficient work at each grade level. Worse, the achievement gap in NAEP math scores between white and minority students has remained relatively unchanged since 1990, with 68 percent of African-American 8th graders scoring below the basic level, compared to 23 percent of white students.

On international assessments, U.S. performance relative to other nations actually declines with increased schooling. According to the most recent (1999) Third International Mathematics and Science Study (TIMSS), an assessment that evaluates the math and science performance of 4th, 8th and 12th grade students from 42 different countries, most U.S. children score above average in elementary school, but those in 12th grade—including our most advanced students—rank among the lowest of all participating countries, outperformed by nearly every industrialized nation and ahead of only Cyprus and South Africa.

Although many parents and students believe that a high school diploma provides adequate preparation for higher education and the world of work, recent surveys found that most college students must take at least one remedial English or math class before beginning standard coursework. And many employers rated the skills of high school graduates in grammar, spelling writing and basic math as only "fair" or "poor." Combined with the flat or declining enrollments of U.S. students in science and engineering majors, many are concerned that too many of our students enter the workforce with a low level of skills, making them most vulnerable to fluctuations in our knowledge-based economy and putting U.S. companies at a competitive disadvantage.

Workforce Projections

In February 2004, the Bureau of Labor Statistics (BLS) projected that by 2012, the number of professional and high-skilled jobs will constitute 62 percent of all jobs. This is

not surprising, as nine of the 10 fastest growing occupations are in the health and information technology industries.

Moreover, individuals, companies, and society in general benefit when all students achieve challenging math and science standards. For example:

- One study at the University of Pennsylvania showed that a 10 percent (or about one year) increase in the education level of a company's workforce increased productivity by 8.6 percent, while a comparable increase in capital equipment increased productivity by 3.4 percent. For non-manufacturing companies, the result was even higher—11 percent.

- A new study reports that math and science proficiency boosts earning power by a remarkable margin. BLS figures show that, on average, 28-year-old workers who tested in the top quartile of math skills on the National Assessment of Educational Progress earn 37 percent more than those in lower quartiles. A comparable advantage goes to those who test well in science.

In addition, one assessment of skills found that among the new basics for entry level workers at Intel are one year each of chemistry, physics, and electronics, plus a firm grasp of basic science. An entry-level automobile worker, according to an industry-wide standard, needs to be able to apply formulas from physics to properly wire the electrical circuits of a car. And janitors at a hospital often have to understand bio-hazardous materials waste management. Yet, as noted by a 1998 report authored by Representative Vernon Ehlers entitled, *Unlocking Our Future*, "There appears to be a serious incongruity between the perceived utility of a degree in science and engineering by potential students in the U.S. and the present and future need for those with training in our society."

Business Involvement in Education

Many businesses first decide to get involved in education primarily for philanthropic reasons, but they soon recognize a variety of distinct benefits from a meaningful relationship with a school or district. Although many businesses continue to fund programs and donate equipment, many more are becoming to get involved in activities ranging from tutoring and employee involvement programs to reform activities at the national, state and local level.

These relationships can boost student test scores, contribute to overall student achievement and enhance the student experience. For businesses, there are many different strategies they can employ. Some communicate workplace academic skill requirements to schools, parents and students through guest lectures, involvement on the school board or mentoring and tutoring programs for students. Others create opportunities to expose students to the world of work through internship or job shadowing programs. And still others encourage their employees, especially those who are parents, to increase their involvement with local schools by providing release time to allow them to volunteer or to attend parent-teacher conferences.

From a human capital perspective, these relationships between a corporation and a school can boost employee morale, earning the employer and its employees recognition as a "good neighbor." In turn, this can improve overall employee satisfaction and proving employee satisfaction and productivity.

From a financial and community perspective, these relationships can provide a revenue stream to schools while also building customer loyalty for the business. In addition, school improvement can contribute to the economic health of the community. And the quality of a local school is, according to Money magazine, one of the most important criteria considered by potential employees when considering whether to accept a job offer in a new city.

APPENDIX

Section-by-Section Analysis of H.R. 4030, *The Congressional Medal for Outstanding Contributions in Math and Science Education Act of 2004*

Sec. 1. Short Title.
"Congressional Medal for Outstanding Contributions in Math and Science Education Act of 2004."

Sec. 2. Definitions.
Defines terms used in the text.

Sec. 3. Establishment of Program.
Requires the Director to establish a Congressional Medal for Outstanding Contributions in Math and Science Education program, which shall be designed to:

(1) recognize private entities for outstanding efforts supporting elementary and secondary schools in improving student achievement in science, technology, engineering, and mathematics;

(2) encourage private entities to support elementary and secondary schools to improve and underscore the importance of science, technology, engineering, and mathematics education; and

(3) distribute information about the gold medal recipients available to schools, institutions of higher education, educators, parents, administrators, policymakers, researchers, public and private entities, and the general public.

*Sec. 4. Medals***.**
(a) Requires, within two years of enactment, the Director to annually name finalists according to the following criteria:

(1) not more than 20 private entities with more than 500 employees; and

(2) not more than 20 private entities with 500 or fewer employees.

Specifies that each finalist shall receive a citation describing the basis for the entity achieving status as a finalist.

(b) Requires, within two years of enactment, the Director to annually award medals to employers who are among the finalists in (a) according to the following criteria

(1) not more than 5 private entities with more than 500 employees; and

(2) not more than 5 private entities with 500 or fewer employees.

(c) Distribution of Information.
(1) Requires the Director to distribute information about the Congressional Medal recipients to schools, institutions of higher education, educators, parents, administrators, policymakers, researchers, public and private entities, and the general public.

(2) Allows any entity that is a finalist or receives a medal to use such information for advertising or other publicity purposes.

Sec. 5. Eligibility.
Makes any private entity that has, either alone or in partnership with for-profit and/or non-profit entities, assisted students, teachers, administrators, or other support staff in improving student achievement in science, technology, engineering, and mathematics in a school or community eligible to receive a medal. Requires the entity to be involved in a sustained manner for at least two years with at least one elementary or secondary school.

Sec. 6. Application.
Requires the Director to establish a system for accepting applications from entities seeking to be considered for the medal. Requires applications to include at least two letters of support, which may come from teachers, support staff, administrators, professional or business organizations, local, county, or State Departments of Education, and any other categories of persons or organizations as designated by the Director.

Sec. 7. Selection.
Requires the Director to give priority consideration to evidence of improved student achievement in selecting entities to receive medals. Requires the Director to consider, in addition to any other criteria the Director may establish:

(1) Evidence of innovative approaches to increase interest by students in science, technology, engineering, and mathematics such as an increase in the number of students enrolled in advanced courses related to such fields;

(2) Evidence of employee interaction with students or teachers to support and improve mathematics and science learning;

(3) Evidence of success in positively influencing student attitudes and promoting education and career opportunities in science, technology, engineering, and mathematics;

(4) Evidence of successful outreach to students, parents, and the community regarding the importance of mathematics and science education to the Nation’s prosperity, job creation, and standard of living, as well as future earning potential for the individual; and

(5) Evidence of a strong and sustained commitment to the students and schools.

Sec. 8. Authorization of Appropriations.
For each of fiscal years 2005 through 2007, authorizes such sums as are necessary for carrying out this act, to be derived from amounts authorized by the National Science Foundation Authorization Act of 2002.